

REMARKS/ARGUMENTS

I. INTRODUCTION

Applicants have amended claim 1. Claims 1-6 are presently pending in this application. Applicants respectfully submit that the rejection of claims 1-6 is improper and respectfully request reconsideration and reexamination of the application in view of the following arguments and amendments.

II. AMENDMENTS TO THE CLAIMS

Applicants have amended claim 1 to clarify the use of the hydrogen feeding hose. Applicants respectfully submit that none of these amendments adds any new matter.

III. REJECTION OF CLAIMS 1, 3, AND 4 UNDER 35 U.S.C. § 103(A)

Claims 1, 3, and 4 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. (U.S. Patent No. 6,240,970) in view of Fukushi (U.S. Publication No. 2003/0087053) and Kodama et al. (U.S. Patent No. 5,937,911). Applicants respectfully submit that the rejection of claims 1, 3, and 4 under 35 U.S.C. § 103(a) is improper because there is no suggestion or motivation in the prior art to combine the cited references, and further, the combination of Ostrander et al., Fukushi, and Kodama et al. fails to disclose or suggest all of the limitations in the claim.

“Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case.” MPEP § 2141 (emphasis in original).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143. Applicants submit that that there is no suggestion or motivation to combine the teachings of Ostrander et al., Fukushima, and Kodama et al., and further, that the combination of Ostrander et al., Fukushima, and Kodama et al. fails to teach or suggest all of the limitations set forth in the claims.

Independent claim 1 recites: “A hydrogen feeding hose for a fuel cell, the hose comprising three hydrogen barrier layers which are from the inside towards the outside: a layer comprising a fluorine-based thermoplastic material; a layer comprising a vinyl ethylene alcohol; and a layer comprising a polybutylene terephthalate.” (emphasis added). Applicants respectfully submit that there is no suggestion or motivation to combine the teachings of Ostrander et al., Fukushima, and Kodama et al. to achieve the structure of the present invention as recited in amended claim 1.

Ostrander et al. discloses a tube for handling hydrocarbon material with an inner layer comprised of a polyamide or a fluoroplastic material, such as polyvinylidene fluoride (PVDF) or ethylene tetrafluoroethylene (ETFE) copolymer; an intermediate layer that may be comprised of ethylene vinyl alcohol (EVOH) in those embodiments in which the inner layer is a polyamide; and an outer layer of a thermoplastic material, such as nylon, polyester block amides or polypropylene, a thermoplastic elastomer, such as SANTOPRENEO®, or a thermoplastic rubber composition. The Examiner acknowledges that Ostrander et al. does not disclose the use of an EVOH intermediate layer in combination with a fluorine based thermoplastic inner layer.

(Office Action of December 29, 2004 p. 3). However, the Examiner asserts that one of ordinary skill in the art would be motivated by Fukushi to employ a barrier layer comprised of EVOH for the purpose of protecting against the permeation of hydrocarbons in Ostrander et al. The tubing of Ostrander et al. already serves to prevent or reduce the permeation of hydrocarbons therethrough, so there is no suggestion or motivation to change from an existing structure in Ostrander et al. that *already accomplishes the function*. As noted, the Examiner acknowledges that Ostrander et al. discloses the use of EVOH in combination with a polyamide inner layer, but does not disclose the use of EVOH in combination with fluorine based thermoplastics. Accordingly, while Ostrander et al. discloses several types of materials and several different combinations for the various layers of the tubing, Ostrander et al. never contemplates the use of fluorinated thermoplastics in combination with EVOH. Instead, the combination of fluorinated thermoplastics with EVOH is implicitly dismissed in Ostrander et al. Under MPEP § 2145, a prior art reference that teaches away from the claimed invention is a significant factor to be considered in determining obviousness. By implicitly dismissing the combination of fluorinated thermoplastics with EVOH, Ostrander et al. teaches away from the inventive combination.

The Examiner also acknowledges that Ostrander et al. does not disclose the use of polybutylene terephthalate (PBT) as an outer layer. (Office Action of December 29, 2004 p. 3). However, the Examiner asserts that one of ordinary skill in the art would be motivated by Kodama et al. to employ an outer layer that can be formed of PBT, in place of an outer layer comprised of nylon, polyester block amides, polypropylene, thermoplastic elastomers, or a thermoplastic rubber composition in Ostrander et al. for the purpose of providing different

properties for use in different environments to make the hose more useful for a wider range of applications. (Office Action of December 29, 2004 pp. 3-4).

Kodama et al. discloses the use of a PBT layer adjacent a fluorinated thermoplastic, not adjacent a layer comprised of EVOH. Because Kodama et al. is silent regarding the combination of an EVOH layer and a PBT layer, there is no suggestion or motivation in the prior art to combine the teachings of Ostrander et al. with Kodama et al. to utilize a PBT layer adjacent an EVOH layer. Moreover, while several different materials are contemplated in Ostrander et al. for the outer layer, PBT is never mentioned and there is no suggestion or motivation in the prior art to use PBT in connection with EVOH or to combine Ostrander et al. with Kodama et al. Under MPEP § 2143.01, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” MPEP § 2143.01 (citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)).

The combination of Ostrander et al., Fukushi, and Kodama et al. also fails to disclose or suggest all of the limitations set forth in the claims. Newly amended claim 1 recites a “hydrogen feeding hose for a fuel cell.” (See amended claim 1). Accordingly, the invention concerns a hose for carrying hydrogen, while the references cited by the Examiner relate to tubing for carrying hydrocarbon fuels. None of the cited references disclose a hose for carrying hydrogen to a fuel cell. Further, hydrogen that is chemically linked to only other hydrogen atoms displays properties different from those of hydrocarbon molecules where hydrogen may be chemically linked to at least one carbon atom. For example, hydrogen that is chemically linked to only hydrogen has a lower density, has different geometrical features (i.e., is less bulky), and has different chemical compatibility than hydrocarbon molecules. Accordingly, materials having

hydrocarbon barrier properties may not necessarily exhibit acceptable hydrogen barrier properties. Accordingly, there is no suggestion or motivation to combine, or even use, Ostrander et al., Fukushi, or Kodama et al. when designing a hose for transporting hydrogen in the feeding circuit of a fuel cell.

Because there is no suggestion or motivation to combine the teachings of Ostrander et al., Fukushi, and Kodama et al., and because the combination of Ostrander et al., Fukushi, and Kodama et al. fails to disclose or suggest all of the limitations of independent claim 1, Applicants respectfully submit that the rejection of independent claim 1 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicants request that the rejection be withdrawn. Further, because each of claims 3-4 depend from independent claim 1, Applicants submit that the rejection of claims 3-4 under 35 U.S.C. § 103(a) is improper and request that the rejection of claims 3-4 be withdrawn.

IV. REJECTION OF CLAIM 2 UNDER 35 U.S.C. § 103(A)

Claim 2 stands rejected as being unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. in view of Fukushi and Kodama et al., and further in view of Blasko et al. (U.S. Patent No. 6,776,195). Claim 2 depends from claim 1 directly, and therefore contains all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 1, Applicants respectfully submit that the rejection is improper and request reconsideration and withdrawal of the rejection.

V. REJECTION OF CLAIMS 5-6 UNDER 35 U.S.C. § 103(A)

Claims 5-6 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. in view of Fukushi and Kodama et al., and further in view of Nishino et al. (U.S. Patent

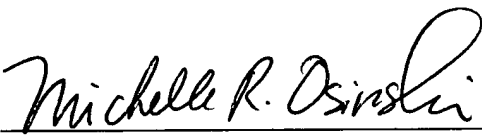
No. 6,089,278). Claims 5-6 depend from claim 1, either directly or indirectly, and therefore contain all the limitations thereof. Accordingly, for at least the same reasons given above in connection with claim 1, Applicants respectfully submit that the rejections are improper and request reconsideration and withdrawal of the rejection.

VI. CONCLUSION

For the above cited reasons, all of the claims presently pending in this application are believed to be allowable. If the Examiner has any further questions or concerns, the Examiner is invited to contact the Applicant's undersigned attorney.

Respectfully submitted,

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